

BOOK REVIEWS

AN ILLUSTRATED FLORA OF THE PACIFIC STATES*

The appearance of the first volume of Professor Abrams' *Illustrated Flora* is an important event in North American botany, and marks an era in the botanical history of the Pacific States. Hitherto the Pacific coast has been noteworthy as a part of the United States that has never possessed any descriptive work dealing with its flora as a whole; now, suddenly, it takes its place as the only section of our country, except the northeastern states, with a general flora containing descriptions and illustrations of every species of its flowering plants and ferns. To be sure, the volume before us is only one of the three needed to complete the work, but there seems no reason why the remaining volumes should not follow with reasonable promptness.

This book is frankly patterned after Britton & Brown's *Illustrated Flora*, and follows its style very closely indeed. The pages are of approximately the same size, the type and illustrations of similar style, and the new flora even follows its prototype in the system of nomenclature adopted and in the attempt to assign to each species an English name as well as the technical Latin one. Perhaps the most conspicuous differences are (1) the decapitalization of all specific names; (2) the use of the metric system for all plant measurements.

The present volume includes all of the pteridophytes, gymnosperms, and monocotyledons, and eleven families of the dicotyledons, its scope being almost the same as that of the first volume of Britton & Brown's work; it comprises 568 pages, and contains 1299 figures, of which more than one thousand appear here for the first time. Typographical errors are few for a work of this character. The most serious one observed is on the title-page, where the author's name is printed as if it were "Leroy," although he writes it "Le Roy" and commonly abbreviates it to "L. R."

The area covered by Abrams' flora is only about one fifth of that included by Britton and Brown, but the topography is much more diversified, so that it is hardly surprising that, in

*Abrams, Le Roy. *An illustrated flora of the Pacific States: Washington, Oregon, and California*. In three volumes. Vol. 1, Ophioglossaceae to Aristolochiaceae, xi + 557 pages, with 1299 figures in the text. Stanford University, California, Stanford University Press, [15 My] 1923.

the groups covered in the volume before us, the number of species in the former is more than three fourths as great as in the latter. So closely does the flora of Abrams follow that of Britton and Brown in arrangement, and in the concepts of families, genera, and species, that it is a very simple matter to compare the two works group by group, and ascertain the relationships of the two floras. In our comparison we have used the second edition of Britton and Brown.

Thus we find that in the coast flora there are about four fifths as many ferns and fern-allies as in the northeastern flora. Only a few genera are notably larger, such as *Cheilanthes*, *Pellaea*, *Notholaena*, and *Selaginella*, while others, such as *Dryopteris*, *Asplenium* and *Lycopodium*, are much smaller. On the other hand, the western species of gymnosperms are almost twice as numerous as the northeastern ones.

There are nearly as many kinds of western grasses as of northeastern ones, but the percentages differ greatly in different tribes. For instance, in *Paniceae* there are 27 Pacific species and 120 northeastern ones, while in *Hordeae* there are 48 Pacific species and only 39 northeastern ones. In other groups, grass genera more largely represented in the coast flora are *Stipa*, *Agrostis*, *Calamagrostis*, *Bouteloua*, *Melica*, *Poa*, *Festuca*, and *Bromus*. The coast Cyperaceae are less than two thirds as numerous as the northeastern ones, the great genus *Carex* being very slightly larger in proportion than the other genera, namely, 167 to 242. One whole series of monocotyledonous families represented in the northeastern flora (Mayacaceae, Xyridaceae, Eriocaulaceae, Bromeliaceae, and Commelinaceae) is wholly without representation in the western area, but these are all characteristically tropical groups, represented to the northward by only a few outlying species.

Among the higher monocotyledons there are some striking contrasts between the two floras. In the Melanthaceae, for instance, the western shows 6 genera and 17 species, the eastern 14 genera and 20 species, yet only one species (*Veratrum viride*) is common to the two; Amaryllidaceae comprises one genus with 4 species in the western, and 7 genera, each with a single species, in the eastern. On the other hand, there are 9 genera and 21 species of Convallariaceae in the western, and 11 genera and 28 species in the eastern, no less than 5 of the genera showing the

same number of species in the two floras. The Liliaceae are, as is well known, very strongly represented in the coast flora; there are 24 genera and 175 species, as compared with only 15 genera and 40 species in the entire flora of the northeast. The Orchidaceae, on the other hand, are much better represented in the northeastern flora; there are only 13 western genera and 36 species, while there are 28 eastern genera and 66 species.

In the few dicotyledonous families treated in this volume, perhaps the most noteworthy features are the complete absence of the genera *Hicoria* and *Ulmus* and the family Moraceae, and the considerable development of the Loranthaceae.

The similarity of treatment between the two illustrated floras has already been commented upon. The most noteworthy variations shown by the Abrams flora are: the transfer of the two grass genera *Sphenopholis* and *Koeleria* from *Festuceae* to *Aveneae*; the union of Trilliaceae with Convallariaceae; and the change in the order of arrangement of some of the families of lower dicotyledons.

For the most part the author seems to have succeeded very well in following the principles of nomenclature adopted by him. Only two exceptions have come to the notice of the reviewer. One of these was intentional, but no adequate justification of it is offered; this is the name of the famous Big Tree, which is called "*Sequoia gigantea* (Lindl.) Decn.," although this binomial dates from 1855, while the same name was given to the coast Redwood by Endlicher in 1847, six years before the Big Tree was discovered. The other exception was surely accidental, and seems to have resulted from a typographical error in Britton and Brown's flora; this is the use of the name "*Aplectrum spicatum* (Walt.) B.S.P.," although the synonym *Arethusa spicata* Walt. certainly belongs to *Hexalectris*.

More than three fifths of the text of this volume has been contributed by specialists in various groups: Pteridophyta (except Isoetaceae), Maxon; Isoetaceae, Pfeiffer; Poaceae, Hitchcock; Cyperaceae (except *Carex*), Britton; *Carex*, Mackenzie; Juncaceae, Coville; and *Salix*, Ball. In these days of specialization, such co-operation is essential; it is to be hoped, however, that in the two remaining volumes the author will find more room for self-expression.—JOHN HENDLEY BARNHART.